RISC OS 3

Turbo

DRIVERS

RISC OS 3.1 version

SERIAL NUMBER .....

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1. Introduction

This section covers:

how the TurboDriver software works.
the TurboDriver documentation.

Computer Concepts' TurboDriver software is a development of the LaserDirect laser printer drivers. This software uses advanced processing algorithms for the fastest possible text and graphics handling. Using TurboDriver means that it takes only seconds to render a page and start printing. Pages are processed and then queued for printing – as soon as one page has finished printing, the next is immediately available from the queue.

How the TurboDriver software works

When TurboDriver has to print a page it initially claims an area of the Archimedes' memory in which to assemble the page image. This image is a copy of the individual dots that will be printed on the paper.

TurboDriver transfers the assembled page image to the print queue. (The image is usually compressed during the transfer.) TurboDriver can then start assembling the next page if there is one. After the last page, TurboDriver releases the memory it was using for the page image.

The print queue is normally held in compressed format on disc. (If you only have floppy discs, you can tell TurboDriver to hold the print queue in memory – the *Software* section of this manual gives more details.) If there is enough space to hold a complete page in the queue, TurboDriver starts sending the page to the printer in the background. This means that as soon as the last page has been assembled and transferred to the page queue, TurboDriver can return control of the Archimedes back to you. You can use the Archimedes for other tasks whilst TurboDriver continues to send data to the printer.

When the last page has been sent to the printer, TurboDriver releases all the memory or disc space used for the print queue.

When the page queue is held on disc it is in the system scrap directory (*!Scrap*). If your disc is almost full there might not be sufficient room to create the page queue. TurboDriver then reports a *Disc full* error message and abandons the print task. If this happens, you have two options:

- Hold the page queue in memory – see *Software* for details.
- Archive or compress some files on the disc. (Computer Concepts offer **Compression**, a fast file-compression application, which can double the effective size of your discs.) If you only have floppy discs, we recommend upgrading to a hard disc. You will be amazed how fast everything loads and how much easier the Archimedes is to use with plenty of storage space on disc.

If there is insufficient space in memory for the print queue, TurboDriver has to send data to the printer in the foreground. This means that you cannot use the Archimedes until all pages have been sent to the printer. Foreground printing only happens if there is little free space in memory. The solution is to make more space available by quitting non-essential applications.

Documentation

The TurboDriver documentation is in two parts:

- this manual describes the common parts of TurboDriver,
- the *Printers Supplement* contains information on specific types of printer.

You may also need to refer to the manual supplied with the printer and to the *RISC OS 3 User Guide* supplied with your computer.

2. Getting started

This section covers:

installing the TurboDriver software into your Archimedes.

The printer manual details setting-up the printer.

What you should have received:

Check that you have the following:

- TurboDriver floppy disc
- *Printers Supplement*
- printer-to-Archimedes interface cable
- registration card.

Do you have the correct version of RISC OS?

This version of TurboDriver only works with RISC OS 3.1 or later. The Task Manager (the right-hand icon on the icon bar) tells you the version of RISC OS:

- RISC OS 3 has an acorn icon. Click **Menu** (the middle mouse button) on the icon. This displays a menu. The top option **Info** tells you the version number.
- RISC OS 2 has a 'slanted-A' icon.

If you have an A5000 with RISC OS 3.0, you need an upgrade to RISC OS 3.1. Contact your Acorn dealer for details. (We strongly recommend this upgrade – 3.1 has many advantages and improvements over 3.0.)

If your computer has RISC OS 2, we recommend upgrading to RISC OS 3.1. Contact your Acorn dealer for details. Alternatively, RISC OS 2 versions of this software are also available for certain Canon printers. However, the RISC OS 2 versions do not have all the available functions of this software. Return the enclosed card to Computer Concepts for a RISC OS 2 TurboDriver.

Setting the DIP switches in the printer

Refer to the *Printers Supplement* for the correct switch settings for your type of printer.

Connecting the printer to the Archimedes

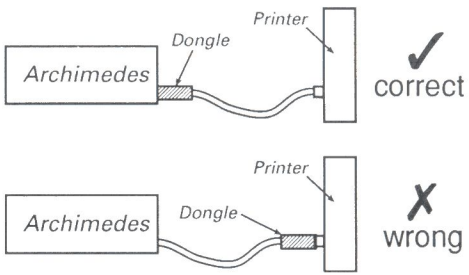
Important:

The TurboDriver software only works with the special cable provided.

Plug the cable into the Archimedes and into the printer. Secure the cable at both end using the clips and screws provided.

If the interface cable is too short you can use an extension cable or exchange it for a longer cable. Contact Computer Concepts for more details.

Some software packages, such as Impression, require hardware keys (also called "dongles"). These must be connected directly to the Archimedes so plug the TurboDriver cable into the hardware key at the Archimedes end.



If you want your Archimedes to fit close to a wall, the combination of hardware key and cable can cause problems. Computer Concepts offer a short ribbon cable (commonly called a "dongle-dangler"). This connects between the hardware key and the Archimedes and lets the hardware key hang down behind the machine. A dongle-dangler costs £3.00 + VAT (£3.52 incl.) post-paid.

Installing the software

We recommend you copy the TurboDriver disc either to a hard drive (if you have one) or to another floppy disc. Store the original TurboDriver disc in a safe place.

1 Quit *!Printers* if this is currently loaded on the icon bar.
2 Load *!Install* (supplied on the TurboDriver disc).
3 Drag the *!Printers* icon onto the *Install* window.
4 Select your printer type in the *Install* window.
5 Click on the **Install** button.

This updates *!Printers* with the necessary TurboDriver files.

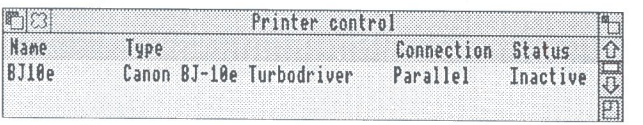
Now you need to install the TurboDriver definitions into *!Printers*:

1 Quit any applications you have loaded on the icon bar.
2 Load *!Printers*.
3 Click **Menu** (the middle mouse button) over the *!Printers* icon on the icon bar. This displays a menu.

4 Choose **Printer control** from the menu. This opens a window showing the printers currently loaded in *!Printers*.

5 Drop the printer definition suitable for your printer onto this window. See the *Printers Supplement* for the location of and a list of these definitions.

The new definition is added to the end of the list of current printers.



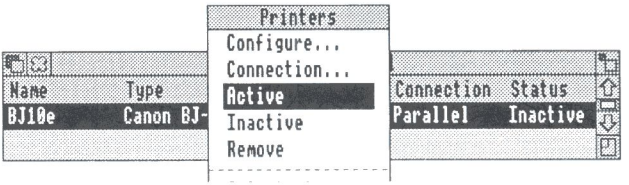
However, *!Printers* does not resize the window. This can mean that adding a new printer appears to have no effect. (This part of the software was written by Acorn Computers.)

6 If necessary, scroll down the window until you see the new printer.

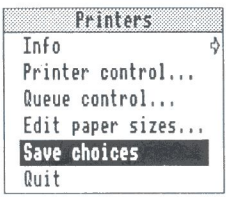
The printer must be *Active* before you can use it. The first printer loaded into *!Printers* is automatically *Active*. For other printers:

7 Move the mouse pointer over the printer details in the window and click **Menu**. This displays a menu.

8 Choose **Active** from the menu. This makes the printer *Active* and displays a new icon on the icon bar.



You need to save the current settings so *!Printers* always starts up with the correct printer selected:



9 Click **Menu** on a printer icon on the icon bar. This displays a menu.

10 Choose **Save choices**.

11 Reset the computer by pressing *Ctrl-Reset*.

This completes software installation.

Testing the printer

Included on the TurboDriver disc is a file called *TestFile*. Load *!Printers* and drop *TestFile* onto the TurboDriver icon on the icon bar.

This prints out a mixture of text and graphics to show the printer is working correctly.

A second file, *HeadTest*, prints a distinctive pattern to show all the print nozzles are functioning. (These nozzles fire ink at the paper. They are very small and can become blocked. Cleaning the nozzles is a simple operation and is described in the printer manual.) Nozzle blockages will happen less often if you always switch the printer off correctly using the power switch.

Status display

This section does not apply to Archimedes A300/A400 series, A540 or BBC A3000 computers.

The parallel interface on the computer can detect additional error states such as paper-out and off-line. However, some types of hardware key disable these extra status lines. The TurboDriver status box then reports a permanent error. If this happens, set **Ignore status** in the Configure dialogue box (described later).

If you have Computer Concepts' Impression software...

You require Impression version 2.17 or Impression Junior 1.17 (or later versions) as these were the first to make proper use of the RISC OS 3 printer drivers. If you have an earlier version, return Impression/Impression Junior disc 1 with a note of your Impression registration number to Computer Concepts and ask for an upgrade. Upgrades are usually free.

If you have Computer Concepts' ScanLight software....

This information applies if you have Scanlight version 2.01 or earlier. It does not apply to later versions.

On the TurboDriver disc is the latest version of a file called *ImageExtnd*. This needs to be copied to ScanLight to give improved rendering when printing.

1 Quit any applications you have loaded on the icon bar.
2 Hold down the Shift key and double-click on *!Scanner*. This opens a directory window showing the contents of the ScanLight application.
3 Double-click on *Modules*. This opens a second directory window.
4 Delete *ImageExtnd* in that directory window.
5 Copy over *ImageExtnd* from the TurboDriver disc into the *Modules* directory window.
6 Reset the Archimedes by pressing *Ctrl-Reset*.

Return the Registration Card

Don't forget to return the Registration Card. This ensures you receive information on any updates and improvements made to TurboDrivers. Registered customers are entitled to free technical support.

3. Printing using TurboDrivers

This section describes:

loading TurboDriver,
printing from files and applications.

The operation of TurboDriver is the same as other types of RISC OS 3 printer drivers. The *RISC OS 3 User Guide* contains further general information on using *!Printers*.

Note:

Many application programs suggest increasing the size of the Font cache when printing. With TurboDriver this is usually unnecessary (see *Queue options* later) and the Font Cache can be left at its normal, screen-use size.

Loading TurboDriver

Load *!Printers*. If you followed the TurboDriver installation procedure, this installs the TurboDriver icon on the icon bar.

When on the icon bar, the icon has these possible forms:

The printer is ready for use. (The icon for the Canon BJ-10e printer is shown – the icons for other printers differ slightly.)

The warning symbol. The Status Box (described later) displays the warning message

The printer is probably switched off.

The printer is out of paper.

The last two icons do not appear if:

- you have an A300/A400 series, A540 or BBC A3000 computer, or
- you have selected the **Ignore status** option (described later).

You can skip the rest of this section if you are familiar with the RISC OS printing system.

Printing files

You can print certain files (such as *Text, Command, Draw & Sprite* file types) simply by dropping their icons onto the printer icon. You can also do this with files created by TurboDriver printing-to-file (described later). With unrecognised file types, the software asks you to confirm that you want to print the file as plain text.

Printing from applications

TurboDriver operates like other RISC OS printer drivers. That is, you display the print dialogue box for the application, set any necessary parameters (such as the number of copies) and then click on the *Print* or *OK* button in the dialogue box.

Printing to file

You may want to print the same file again and again in the future. In this case, it is quicker to initially print to file. Refer to *TurboDriver Connection dialogue box* (in *Software*) for further details of using this option.

The default file name is *Printout*. When you want to print a copy just drop the printout file icon onto the TurboDriver icon on the icon bar.

Printing from Basic

(and other applications that do not use the RISC OS printing system.)

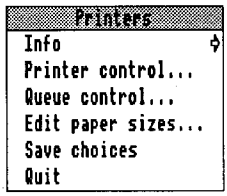
There's more information about printing from these applications at the end of the *Software* section.

4. Software

This section describes:

the menus and dialogue boxes.

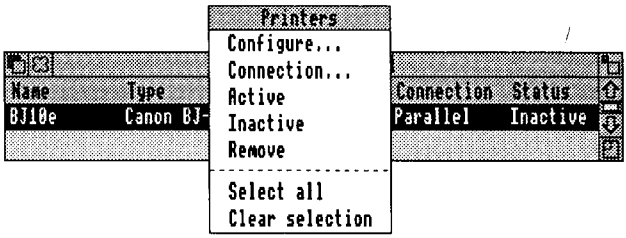
The icon bar menu



Click **Menu** on the TurboDriver icon on the icon bar. This displays the icon bar menu. These menu options are described in the *RISC OS 3 User Guide*. However, note that any changes you make to the printer dialogue boxes are only temporary; they are lost when you switch off or reset the computer. To make the changes permanent, click on **Save choices**.

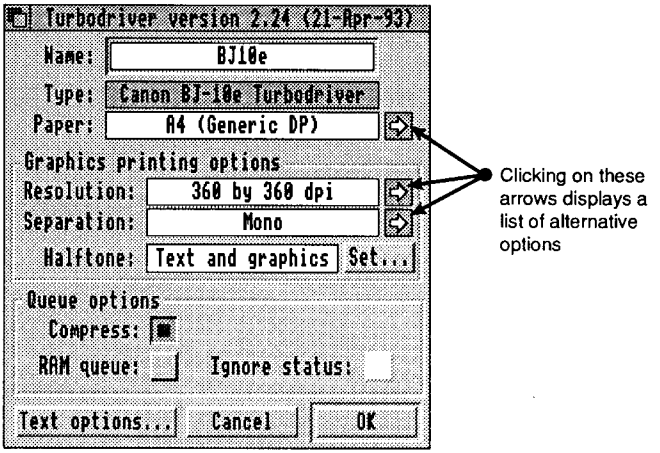
Choose **Printer control** to display a list of the printers currently loaded in *!Printers*.

Move the mouse pointer over the TurboDriver entry and click **Menu**. This displays a menu specific to TurboDriver:



Configure dialogue box

Choose **Configure...** from the TurboDriver menu or hold down *Shift* and click on the printer icon on the icon bar..



The Title Bar shows the version number of the TurboDriver software (2.24 in the illustration). If you have any technical queries about TurboDriver, you may need to quote this version number.

Name

This name appears under the icon on the icon bar. You can change this if you wish.

Type

This tells you the type of printer driver.

Paper

This shows the currently selected paper size and margins. TurboDriver, when first loaded, automatically selects a suitable option. Changing to an unsuitable paper size may mean parts of your document are not printed (printing is *"cropped"*).

Some types of printer can accept two or more paper sizes. (For example, A3 and A4.) If you change to an alternative paper size, make sure you select the appropriate option for your type of printer. To change the paper size, click on ➪ to the right of the paper size. Choose the new paper size from this menu.

You can also create new paper sizes if required. Choose **Edit paper sizes..** from the icon bar menu. This opens a dialogue box that lets you specify new sizes of paper. For full details of this dialogue box refer to the *RISC OS 3 User Guide*. Refer to the manual for your printer for details of suitable margins.

Resolution

Some types of printer have a range of print resolutions. The highest resolution (usually 300×300 or 360×360 dpi) gives best results but uses more memory when printing. It also takes slightly longer to process each page.

Separation

Full-colour (four-colour) printers

These use four ink colours; *black, cyan, magenta,* and *yellow.* Examples are the Canon BJC-800 and DeskJet 550C printers.

Select **4 colour, All** to print in colour. You can also use the single colour options to proof pages that will be output as separations to an imagesetter such as a Linotronic. Proofing the four-colour separations often lets you spot mistakes at an early stage.

Three-colour printers

Some types of printer use only three ink colours, *cyan, magenta, & yellow.* Black and grey shades are created by printing equal amounts of the three inks.

Select **3 colour, All** to print in colour. You can use the single colour options for proofing pages.

Mono (black-and-white) printers

Examples of these are the Canon BJ-10 & BJ-200 and DeskJet 500 printers.

Usually you want to print the page converting coloured images to the equivalent shade of grey. For this choose **Mono.**

You can purchase different coloured ink cartridges. (For full colour printing you require four ink colours – *black, cyan, magenta & yellow.*) You can then use the other options to print multi-coloured pages by:

1 if necessary changing the ink cartridge to the required colour,
2 selecting the appropriate colour separation,
3 printing the document,
4 repeating the process with different inks, as required.

Full-colour printing requires four passes through the printer to print the four ink colours.

(Computer Concepts ccurrently only supply black ink cartridges for the Canon BJ range. We cannot supply cartridges for other printer ranges. Nor can we suggest suppliers for other ink colours or cartridge types.)

As suggested above, you can also use the other options to proof pages prior to outputting to a imagesetter.

Halftone

This duplicates information in the *Halftone* dialogue box (described later).

Click on **Set** to display the *Halftone options* dialogue box.

Compress

Using data compression means less space is needed for the page queue.

It has the disadvantage that about 40 KB of extra memory is needed to process the page. If there is little free memory you may find it easier to switch off compression.

We recommend using compression where possible.

RAM queue

This uses the Archimedes memory (RAM) for the page queue instead of the disc. You would use this option if:

- you had little free space on your disc, or
- the computer has a lot of free memory (at least 1 MByte).

Queueing to RAM is slightly faster than to disc. TurboDriver uses a maximum of 4 MBytes of RAM. (There is no limit to the amount of disc space TurboDriver claims when printing a lot of pages. This is rarely a problem as TurboDriver releases memory and disc space when it finishes printing.)

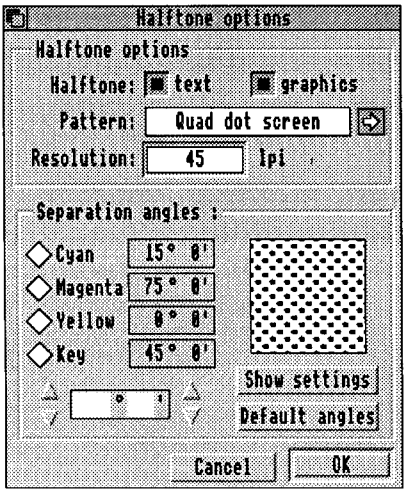
Ignore status

This option is greyed (unavailable) if you have an A300/A400 series, A540 or BBC A3000 computer.

Other computers can detect extra error conditions such as *paper out* or *printer switched off*. However some types of dongle or other external hardware connected to the parallel port (for example SCSI adaptors) can interfere with these conditions and report false errors. Switch **Ignore status** on if the printer reports a false error.

Halftone dialogue box

To display this, click on the **Set** button in the Configure dialogue box.



Halftone: text & graphics

The **Halftone:** field in the Configure dialogue box reports the current setting of these switches.

With the switch **on** text or graphics are printed using intermediate shades of grey (when using black ink). This gives the best results and, because optimised routines in TurboDriver are used, is faster.

With the switch **off** everything prints as black and white without grey shades. A further disadvantage is that a larger font cache is required (because Acorn's standard font manager is used).

You would need to switch **text:** off if Acorn produce a new version of their font manager with a different font format. Also switch **text:** off to print bit-mapped fonts (TurboDriver tells you if you try to print these fonts).

You would need to switch **graphics:** off if you had little free memory. To release the memory, you must restart your computer. (You also need to click on **Save choices** on the icon bar menu to make the change permanent.)

Technical note: The text option loads the Computer Concepts' Fast Text Rendering module; the graphics option loads the Computer Concepts' Fast Draw module.

Pattern:

This selects the arrangements of dots in halftones. In most cases the difference between patterns is slight.

The panel in **Separation angles** shows an enlarged version of each pattern as you select them from this menu. (Dot screens 1 & 2 appear identical in the panel – see below for the difference between them.)

Dot screen 1

Intermediate shades are represented by circular dots. There is a linear progression between no ink and solid ink as the shade darkens.

Dot screen 2

This also uses circular dots but with an 'S'-shaped progression towards solid colour. This gives improved contrast on some illustrations.

Dot screen 3

This is the inverse of dot screen 1. That is, shades are represented by circular areas of no ink.

Line

This uses continuous lines rather than dots for halftoning. Line screens are useful for creating effects but have limited general use.

Crosshatch

This uses square dots and produces an effect similar to traditional photographic methods.

Quad dots

A version of dot screen 1 that uses an arrangement of 4 dots in each halftone cell, arranged 2×2. This gives the effect of a closer dot spacing for a given resolution. For example, a 45 lpi quad dot screen looks like a conventional 90 lpi screen.

Resolution

Most printers including bubble jets print intermediate shades as regularly spaced dots of differing sizes. Light shades are printed as small dots; dark shades as larger dots. **Resolution** determines the spacing of the dots; the lower the resolution,

the wider the spacing. Wider spacings can show a greater range of intermediate shades but the individual dots are more noticeable.

Resolution is measured in lines-per-inch (*lpi*). lpi is a traditional printer measurement unit, which basically describes the halftone dot spacing; for example, *20 lpi* means 20 dots per inch.

lpi	Resolution		
	180x180 dpi	300x300 dpi	360x360 dpi
100	3	9	12
90	4	11	16
60	9	25	36
45	16	44	64
36	25	69	100
30	36	100	144

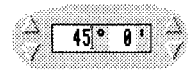
Number of intermediate shades

Separation angles

These are used when printing in multiple colours or when printing separations. The default angles are those used in conventional four-colour printing and are suitable for almost all purposes. (It is often useful to change the angle when using the Line screen.)

(Some books give the usual cyan angle as 105° and yellow as 90° – these are the same angles as used by TurboDriver. 105° is 90°+15° and 90° is the same as 0°.)

To change an angle, click on the radio button to the left of the separation name to select it. This copies the current value into the editable field.



To change the angle either type in a new value or click on the arrows either side of the value. Click on **Show settings** to see the effect of any changes. This updates the panel on the right.

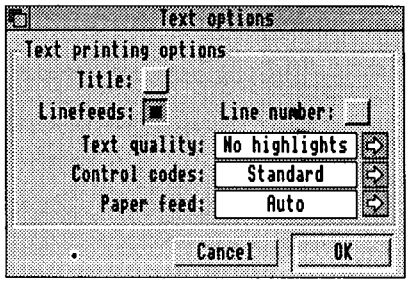
Click on **Default angles** to discard any changes to the separation angles and restore the preset angles (15°, 75°, 0° & 45°).

Any changes you make only take effect when you click on **OK**.

Text printing options

Text options...

To display this, click on the **Text options** button in the Configure dialogue box.



These options apply when printing a file dropped directly onto the printer icon or from text-based applications such as *!Edit*. They are ignored when using applications such as *!Impression*.

Title:

Select this to print at the top of each page:

- the page number,
- filename,
- date and time.

Linefeeds:

Normally this is selected.

If a file prints with an extra blank line after each line of text deselect this option.

If a file prints without feeding the paper after each line select this option.

Line number:

This sequentially numbers each line of text.

Text quality:

No highlights – text is printed in the basic typeface ignoring stylist information such as bold or italic. This is the quickest way to print a file.

Draft – bold and italic stylistic information is retained.

NLQ – the file is printed in as high a quality as possible. This takes longer to print than the other two options but gives the best results. (Because TurboDriver can process page informa-

tion so quickly, there is rarely a great speed difference between **No highlights** and **NLQ**).

Control codes

This defines how control codes and top-bit-set characters are to be treated. (Top-bit-set characters are character numbers 128-255.)

Standard is the usual setting – all characters are passed through to the printer.

Display prints control codes and top-bit-set characters as hexadecimal digits.

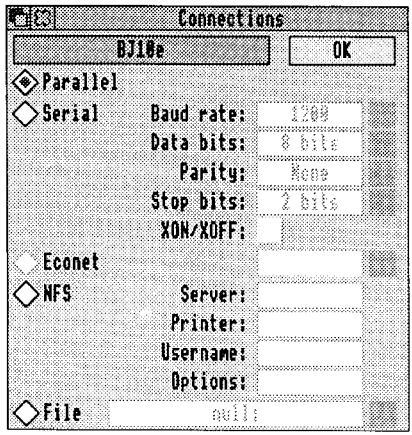
Ignore discards all control codes and top-bit-set characters before sending data to the printer.

Paper feed

Auto is the usual option when your printer has a sheet-feeder fitted. The printer automatically feeds the next sheet of paper.

Select **Manual** to feed single sheets. This is especially useful when printing envelopes.

TurboDriver Connections dialogue box



This controls whether TurboDriver prints directly to the printer, to a network (if one is connected), or to file.

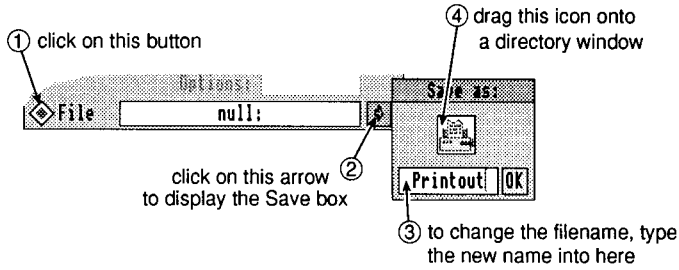
Normally **Parallel** is the selected option. This sends data directly to the printer.

Do not select **Serial**. TurboDriver does not work over the serial port. (This is a standard Acorn dialogue box and TurboDriver cannot disable this option.)

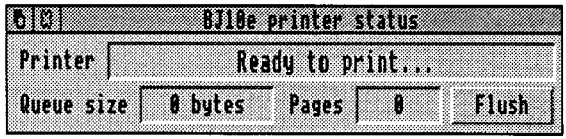
You can print over a network but only to a Computer Concepts printer spooler, not to an Acorn spooler. Contact Computer Concepts for more details. The arrow to the right of **Econet** displays a list of servers currently connected to the network.

Select **Print to file** if you want to print the same file again and again in the future. When you print to file, TurboDriver creates a file on disc containing the print data. When you later want to print the file, select **Parallel** or network and just drop the print data file onto the TurboDriver icon on the icon bar. It then proceeds to print this file in the background ; you can use the computer for other tasks during printing.

Printing to file


④ drag this icon onto a directory window
① click on this button
File
null:
Save as:
Printout
OK
click on this arrow ② to display the Save box
③ to change the filename, type the new name into here

The Status Box



To display the Status Box hold down the *Alt* key and click on the TurboDriver icon on the icon bar. (If TurboDriver is not the selected printer, click twice on the' icon. The first click selects it, the second click displays the Status Box.)

Printer

This displays the current status of the printer. Normally you see the message shown above. This tells you that the printer is ready for printing. If an error occurs, a message in this box describes the error.

Computers other than A300/A400 series, A540 and A3000:

The parallel interface on these computers can detect error states such as paper-out and off-line. The status box can display a full set of error messages.

Some types of hardware key (dongle) disable these extra status lines and the status box reports a permanent error. If this happens, set **Ignore status** in the Configure dialogue box. The TurboDriver software can then only report the limited set of error messages described below.

A300/A400 series, A540 or A3000 computers:

The hardware interface on these machines cannot detect certain error states returned by the printer. Therefore, the status box can only display a limited set of error messages. If the message is **Not accepting data**, check for obvious causes such as no paper or printer off-line.

Queue size

This is the amount of memory or disc space currently occupied by the print queue.

Pages

This is a count of the number of pages waiting for printing.

Flush

This stops printing of the current page and clears the print queue. The printer may continue to print for several seconds until its buffer empties.

Printing from Basic (and similar applications such as FirstWord Plus)

Some applications such as Basic don't use the RISC OS printer system.

Before printing from Basic for the first time you must type in two commands. To do this:

1 Quit any applications you have running.

2 Press function key F12. This exits the normal desktop and enters the command line mode. You will see a * and a flashing cursor.

3 Type

```
CONFIGURE IGNORE <Return>
CONFIGURE PRINT 1 <Return>
```

(1 is the numeral one)

4 Reset the machine by holding down the *Ctrl* key and pressing the Reset button.

You only need to type in these commands once; the Archimedes remembers them from then on.

To print from Basic you must load a suitable interface module. Either:

- load *!Printers* as normal and select a TurboDriver printer or
- load *Turbo* from the TurboDriver disc. This is uses less memory than *!Printers*. Just double-click on the *Turbo* file icon to load it – no icon appears on the icon bar. You can include *Turbo* in the RISC OS boot sequence; *Turbo* is then automatically loaded whenever you start up the computer – see the *RISC OS User Guide* for more details.

With the interface module loaded you can print from Basic and other non-RISC OS applications in the usual way. Printing from normal applications, which use the RISC OS printer driver system, is not affected.

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